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Verified by: Jonathan Bown	Project Risk	Rev: 1.0
Approved by: Sonny Johnston	Register	Issued Date:

Project Risk Register

Owner: Operations Support Manager

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Contributors:

Reviewers:

Approver:

Revision History

Issue Date	Version	Authors	Approver
Dec. 15, 2009		Jonathan Bown, Leslie Warren	Rich Lewis
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Description
First Version

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Risk Type	Risk Category	Likelihood
Requirement	Cost	Very Low
Design	Schedule	Low
Deliverable	Cost & Schedule	Medium
Personnel	Scope	High
Communication	Quality	Very High

CES Project Preliminary Risk Register

Client: Clean Energy Systems (CES)
Project Name: NAM-NAL_RCG_SIS_USCL_CES_ Preliminary EPA UIC Class VI Permit for 6 sites 2019-2020
Project Id: 2019-PRJ-0553
Contract Number: 1-1K8MBPT

P. 1	D.J.			Identification
Number	Date Identified By	Project Phase	Description of Risk	Risk Trigger(s)
1a	SLB	Drilling	Over-pressurized fluid (blowout) during well construction	1. Pocket of high pressure gas or fluid encountered during drilling.
2a	SLB	Injecting/Monitoring	Injection or monitoring (verification) well integrity failure	1. Wallhead pressure asceeds the specified shuldcan pressure specified in the permit.
2b	SLB	Injecting/Monitoring	Injection or monitoring (verification) well integrity failure	1. Annulus pressure indicates a loss of external or internal well containment.
2c	SLB	Injecting/Monitoring	Injection or monitoring (verification) well integrity failure	 Mechanical integrity test results identify a loss of mechanical integrity. Schlumberger Private

	Risk Level
Black	Extreme: Stop the tasks/processes. Significant Action Plan req
	High: Significant Action Plan required.
Yellow	Medium: Action Plan required.
Green	Low: Proceed carefully. Action Plan may but warranted but not r
Blue	Insignificant: Safe to proceed. Action Plan not required.

	Qualitative Analysis		Risk Response				
Severity	Risk Matrix	Strategy		Category	Assigned to	Avoidance Measures	Respons
Severity	Likelihood		Limit access to wellhead to authorized personnel only.	Category	Site Operator		
	Likelinood	1			,	Signage	Site Operator
	VeryLow Low Medium High VeryHigh	Mitigation	Cease drilling operations: loss of drilling fluid due to lost circulation and/or drilling into an over-pressured formation.	Major/Serious, Minor	Well Eng.	Monitoring	Well Eng., Projec
	Light	Mitigation	Initiate well control procedures (see well plan).	Major/Serious, Minor	Well Eng.	Monitoring	Well Eng., Projec
	≥ Serious	Mitigation	Close flow valve (blowout preventer) if considered appropriate not to damage well and USDW.	Major/Serious, Minor	Well Eng.	Monitoring	Well Eng., Projec
Catastrophic	\(\rangle \)	Mitigation	Density was southed by westering flyid levels in the wellhous with appropriate density and westering of flow through shall an early) AZ 11 E		
	Major Catastrophic		Regain pressure control by restoring fluid levels in the wellbore with appropriate density mud, restriction of flow through choke or both. Alert local fire and police and UIC Program Director immediately.	Major/Serious/Minor Major/Serious	Well Eng. Well Eng.		Well Eng., Projec Well Eng., Projec
	Catastrophic A Multi-Catastrophic	8	Determine cause of event and initiate remediation procedures.	Minor	Well Eng.		Well Eng., Projec
	mail oddotopino		Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).	Major/Serious, Minor	Well Eng.		Well Eng., Projec
		Midgaton	Thousy the Gio i rogiani bilector within 24 hours or the entergency event, per 40 or it 140.5 f(c).	IMajor/Gerious, Militor	Well Ling.	Monitoring	Well Ling., 1 Tojec
	Likelihood		Limit access to wellhead to authorized personnel only.		Site Operator	Signage	Site Operator
		Mitigation	Determine the severity of the event, based on the information available, within 24 hours of notification.	Major/Serious, Minor	Well Eng., Project Mgr.	Monitoring	Well Eng., Projec
	VeryLow Low Medium High VeryHigh			Iviajor/Serious, Iviirior	Well Elig., Floject Wgr.	Morntoring	vveii Etig., Projec
	Light	Mitigation	Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).	Major/Serious, Minor	Project Mgr.	Monitoring	Project Mgr.
	Serious		Initiate immediate shutdown plan.	Major/Serious	Site Operator	Monitoring	Site Operator
	Major	Mitigation	Shut in well (close flow valve). After verifying pressures will not damage well or USDW	Major/Serious	Site Operator	Monitoring	Site Operator
	10 A 0						=
	Ø .	Mitigation	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause, location and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director).	Major/Serious	Well Eng	Monitoring	Well Eng
	Catastrophic						
	Multi-Catastrophic		Communicate with CES personnel and local authorities to initiate evacuation plans, as necessary.	Major/Serious	Site Operator	Monitoring	Site Operator
			Evaluate, test sensors to determine they are functioning properly. If sensors are determined faulty or in need of maintenance commence repair/replacement operations. (in consultation with the UIC Program Director restart injecton).				
Light		Mitigation		Minor	Site Operator	Maintenance	Site Operator
		Mitigation	Vent fluids, if needed to maintain acceptable pressures as surface and downhole as not to damage the wellhead or casing.	Major/Serious	Site Operator	Monitoring	Site Operator
		Mitigation	If contamination is detected, identify and implement appropriate remedial actions (in consultation with the UIC Program Director).	Main 10 minus	During A Man	NA itai	Decision Management
				Major/Serious	Project Mgr.	Monitoring	Project Mgr.
		Mitigation	Conduct assessment to determine whether there has been a loss of mechanical integrity.	Minor	Well Eng/Site Operator	Monitoring	Well Eng
		Mitigation	If there has been a loss of mechanical integrity, initiate shutdown plan. Provided there is sufficient mechanical integrity to contain pressures. May need to allow Packer fluid into reservoir and keep well full with fluid in mechanical integrity permits.	Minor	Well Eng/Site Operator	Monitoring	Well Eng
		Mitigation	Reset automatic shutdown devices.	Minor	Site Operator	Monitoring	Site Operator
		Willigation	Interest automatic struttown devices.	IVIIIIOI	Site Operator	Monitoring	Site Operator
			If a shut off is triggered by mechanical or electrical malfunctions without endangering a USDW, repair faulty components.	Minor	Well Eng., Project Mgr.	Monitoring/Maintenance	Well Eng., Projec
			electrical malfunctions without endangering a USDW, repair faulty components. Verify with analog gauges.				
	Likelihood		Limit access to wellhead to authorized personnel only.		Site Operator	Signage	Site Operator
	VeryLow Low Medium High VeryHigh	Mitigation	Determine the severity of the event, based on the information available, within 24 hours of notification.		Project Mgr.		Project Mgr.
F							
	Links	Mitigation	Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).	Major/Serious, Minor	Project Mgr.	Monitoring	Project Mgr.
	Light X		Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c). Initiate immediate shutdown plan	Major/Serious, Minor	Project Mgr. Site Operator	Monitoring Monitoring	Project Mgr. Site Operator
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		Mitigation Mitigation	Initiate immediate shutdown plan. Shut in well (close flow valve). After verifying pressures will not damage well or USDW. Allow packer fluid into reservoir to stop CO2 flow and keep well full with proper density fluid if required.	Major/Serious Major/Serious	Site Operator Site Operator	Monitoring Monitoring	Site Operator Site Operator
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Serious	Serious Major Catastrophic Multi-Catastrophic Likelihood	Mitigation	Initiate immediate shutdown plan. Shut in well (close flow valve). After verifying pressures will not damage well or USDW. Allow packer fluid into reservoir to stop CO2 flow and keep well full with proper density fluid if required. Vent fluids, if needed, to maintain reasonable wellbore and surface facilities pressures. Communicate with CES personnel and local authorities to initiate evacuation plans, as necessary. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs. Vent fluids if from wellhead in order to maintain acceptable pressures as surface and downhole as not to damage the wellhead or casing. Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director). Limit access to wellhead to authorized personnel only.	Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious Minor Minor Minor Minor Minor	Site Operator Site Operator Site Operator Site Operator Well Engineer Well Engineer Well Engineer Well Engineer Well Engineer Well Engineer Site Operator Site Operator Site Operator Site Operator Site Operator	Monitoring	Site Operator Site Operator Site Operator Site Operator Well Engineer Well Engineer Well Engineer Well Engineer Well Engineer Site Operator Site Operator Site Operator Site Operator Site Operator
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	Serious Major Catastrophic Multi-Catastrophic Likelihood VeryLow Low Medium High VeryHigh Serious Major Catastrophic Catastrophic	Mitigation	Nation is remediate abutiform plan. Shul in well close flow valve). After verying pressures oil not startage until or LEDVY. Allow poster fluid into recorroir to stop CO2 flow and keep well full with proper density fluid if required. Very fluids, if needed, to maintain reasonable well-bore and surface facilities pressures. Very fluids, if needed, to maintain reasonable well-bore and surface facilities pressures. When the control of the control of the control of the control of the very fluid or the pressure to every integrity less and determine whether the cause and other or failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director). Conduct assessments determine whether there has been a loss of mechanical integrity. If here has been a loss of mechanical integrity, prepare verif for longer term shuldown to get repairs accomplished. May include plugs. Very fluids if from wellland in order to maintain acceptable pressures as surface and downhole as not to damage the wellhead or casing. Received undersic during during during during the cause and advantable as and overhole as not to damage the wellhead or casing. Received undersic during during during during the cause and advantable as and overhole as not to damage the wellhead or casing. Received undersic during during during during the cause and advantable as and overhole as not to damage the wellhead or casing. Received undersic during during during the cause and advantable as and overhole as not to damage the well-based or casing. Received the integration is control to maintain acceptable; pressure to verify inlegify loss and determine the cause and advantable integration of the pressure, length advantage to the well in consultation with the UIC Program Director). If a shall of is taggered by mechanical or electrical malfunctors without acceptable; and a strong place in the case as the control of the case as the control of the case as the control of the case as the contro	Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious Minor	Site Operator Site Operator Site Operator Site Operator Well Engineer Well Engineer Well Engineer Well Engineer Site Operator	Monitoring	Site Operator Site Operator Site Operator Site Operator Site Operator Well Engineer Well Engineer Well Engineer Well Engineer Site Operator Site Operator Site Operator Site Operator Site Operator Project Mgr. Project Mgr. Site Operator Site Operator Site Operator Site Operator

3a	SLB Injecting/Monitoring	Injection well monitoring equipment failure (e.g., shut-off valve or pressure gauge, etc.)	1. The failure of monitoring equipment for wellhead pressure, temperature, and/or annulus pressure may indicate a problem with the injection well that could endanger USDWs.
3b	SLB Injecting/Monitoring	Injection well monitoring equipment failure (e.g., shut-off valve or pressure gauge, etc.)	1. Equipment failures (sensor, computer, cabling, etc) and damage to wellhead (ran over by heavy equipment).
4a	SLB Throughout	Fluid (e.g. brine) leakage to a USDW	1. Any evidence of fluid movement out of the injection zone (i.e., not necessarily to a USDW) to address unanticipated events associated with faults or other pathways; any potential USDW endangerment/unacceptable changes in water quality; and CO2 leakage to the land surface.
			Schlumberger Private

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		Conduct assessment to determine whether there has been a loss of mechanical integrity.	Minor	Well Engineer	Monitoring	Well Engineer
		If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs.	Minor	Well Engineer	Monitoring	Well Engineer
		Reset automatic shutdown devices.	Minor	Site Operator	Monitoring	Site Operator
		If there is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased.	Minor	Well Engineer	Monitoring	Well Engineer
		Confirm well integrity prior to restarting injection (upon approval of the UIC Program Director).	Minor	Well Engineer	Monitoring	Well Engineer
		Review downhole, wellhead, and annulus pressure data.	Major/Serious	Well Engineer	Monitoring	Well Engineer
		Isolate the nearby area, if needed; establish a safe distance and perimeter using a hand-held air-quality monitor.	Major/Serious	Well Engineer	Monitoring	Well Engineer
		Perform a well log/MIT to detect CO2 movement outside of the casing.	Major/Serious	Well Engineer	Monitoring	Well Engineer
		If a shut off is triggered by mechanical or electrical malfunctions without endangering a USDW, repair faulty components.	No.	Cita On anatan	B.A. with visc or/B.A. in the conservation	Cita On anatan
		electrical malfunctions without endangering a USDW, repair faulty components. Verify with analog gauges.	Minor	Site Operator	Monitoring/Maintenance	Site Operator
000000000000000000000000000000000000000	Likelihood	Limit access to wellhead to authorized personnel only.		Site Operator	Signage	Site Operator
	VeryLow Low Medium High VeryHigh	Determine the severity of the event, based on the information available, within 24 hours of notification.		Project Mgr.	Monitoring	Project Mgr.
	Light	Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).	Major/Serious, Minor	Project Mgr.	Monitoring	Project Mgr.
	Serious	Initiate immediate shutdown plan.	Major/Serious	Site Operator	Monitoring	Site Operator
erity	Melan	Shut in well (close flow valve). Allow packer fluid into reservoir to stop CO2 flow and keep well full with proper density fluid if required.	Major/Serious	Site Operator	Monitoring	Site Operator
Seve	Major	Chat in well (diese new valve). Allow packet had into reservoir to stop GGZ how and keep well fall with proper density had in required.	Major/Corious	Sita Oparatar	Manitaring	
	Catastrophic	Vent fluids, if needed, to maintain acceptable pressures as surface and downhole as not to damage the wellhead or casing.	Major/Serious	Site Operator	Monitoring	Site Operator
	Multi-Catastrophic	Communicate with CES personnel and local authorities to initiate evacuation plans, as necessary.	Major/Serious Major/Serious	Site Operator	Monitoring	Site Operator
		Verify pressures and temperatures with analog guages.				
		Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with	h the UIC Program Director). Major/Serious	Well Engineer	Monitoring	Well Engineer
		If contamination is detected, identify and implement appropriate remedial actions (in consultation with the UIC Program Director).	Major/Serious	Well Engineer, Project Mgr.	Monitoring	Well Engineer, F
Light		Conduct assessment to determine whether there has been a loss of mechanical integrity.	Minor	Well Engineer	Monitoring	Well Engineer
				Well Engineer		
		If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs.	Minor	Well Engineer	Monitoring	Well Engineer
		Shut in well (close flow valve). Allow packer fluid into reservoir to stop CO2 flow and keep well full.	Minor	Well Engineer	Monitoring	Well Engineer
		Vent fluids f from wellhead in order to maintain acceptable pressures as surface and downhole as not to damage the wellhead or casing.	Minor	Well Engineer	Monitoring	Well Engineer
		Reset automatic shutdown devices.	Minor	Well Engineer	Monitoring	Well Engineer
		Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with	h the UIC Program Director).	Well Engineer	Monitoring	Well Engineer
		If there is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased.	Minor	Well Engineer	Monitoring	Well Engineer
		Confirm well integrity prior to restarting injection (upon approval of the UIC Program Director).	Minor	Well Engineer	Monitoring	Well Engineer
		Review downhole, wellhead, and annulus pressure data.	Major/Serious	Well Engineer	Monitoring	Well Engineer
		Isolate the nearby area, if needed; establish a safe distance and perimeter using a hand-held air-quality monitor.	Major/Serious	Well Engineer	Monitoring	Well Engineer
		Perform a well log/MIT to detect CO2 movement outside of the casing.	Major/Serious	Well Engineer	Monitoring	Well Engineer
	Likelihood	Limit access to wellhead to authorized personnel only		Site Operator	Signage	Site Operator
	VeryLow Low Medium High VeryHigh	Determine the severity of the event, based on the information available, within 24 hours of notification.		Project Mgr.	Monitoring	Project Mgr.
		Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).	Major/Serious, Minor	Project Mgr.	Monitoring	Project Mgr.
	Light Serious	Initiate immediate shutdown plan.	Major/Serious	Site Operator	Monitoring	Site Operator
₹		Shut in well (close flow valve). Allow packer fluid into reservoir to stop CO2 flow and keep well full with proper density fluid.	Major/Serious	Site Operator	Monitoring	Site Operator
iveri	Major	Onat in well (dose now valve). Allow packer hald into reservoir to stop GOZ now and keep well fall with proper density hald.	Major/Serious	Oke Operator	- Workering	- Gite Operator
ဖိ		Vent fluids f from wellhead in order to maintain acceptable pressures as surface and downhole as not to damage the wellhead or casing, if possible	Major/Serious	Site Operator	Monitoring	Site Operator
	Catastrophic			0.1.		0.1.0
	Multi-Catastrophic	Communicate with CES personnel and local authorities to initiate evacuation plans, as necessary.		ISite Operator	Monitoring	Site Operator
	Wuru-Catastrophic	- Communication in the Communi	Major/Serious Major/Serious	Site Operator		
	Miditi-Galastrophic				Monitoring	Well Engineer
	Nun-Galastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with		Well Engineer	Monitoring	Well Engineer
Catastrophic	Nutri-Galastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with	h the UIC Program Director). Major/Serious	Well Engineer		
Catastrophic	Nutri-Galastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director).	h the UIC Program Director). Major/Serious Major/Serious	Well Engineer Well Engineer, Project Mgr.	Monitoring	Well Engineer, P
Catastrophic	wuru-Gatastropino	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with	h the UIC Program Director). Major/Serious	Well Engineer		
Catastrophic	Nutri-Odlastiophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director).	h the UIC Program Director). Major/Serious Major/Serious	Well Engineer Well Engineer, Project Mgr.	Monitoring	Well Engineer, P Well Engineer Well Engineer
Catastrophic	wuru-Gatastropino	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity.	h the UIC Program Director). Major/Serious Major/Serious Minor	Well Engineer Well Engineer, Project Mgr. Well Engineer	Monitoring Monitoring	Well Engineer, P
Catastrophic	Nutri-Odlastiophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with for contamination is detected, identify and implement appropriate remedial actions (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs	h the UIC Program Director). Major/Serious Major/Serious Minor Minor Minor	Well Engineer Well Engineer, Project Mgr. Well Engineer Well Engineer	Monitoring Monitoring Monitoring	Well Engineer, P Well Engineer Well Engineer
Catastrophic	Munu-Gatastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices.	h the UIC Program Director). Major/Serious Major/Serious Minor Minor Minor	Well Engineer Well Engineer, Project Mgr. Well Engineer Well Engineer Well Engineer	Monitoring Monitoring Monitoring Monitoring	Well Engineer, F Well Engineer Well Engineer Well Engineer
Catastrophic	ivenu-catastropino	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices.	h the UIC Program Director). Major/Serious Major/Serious Minor Minor Minor	Well Engineer Well Engineer, Project Mgr. Well Engineer Well Engineer Well Engineer	Monitoring Monitoring Monitoring Monitoring	Well Engineer, P Well Engineer Well Engineer Well Engineer
Catastrophic	MENU-Catastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with failure). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with fit there is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased.	h the UIC Program Director). Major/Serious Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor	Well Engineer Well Engineer, Project Mgr. Well Engineer Well Engineer Well Engineer Well Engineer Well Engineer	Monitoring Monitoring Monitoring Monitoring Monitoring Monitoring	Well Engineer, P Well Engineer Well Engineer Well Engineer Well Engineer Well Engineer
Catastrophic	intine-Catastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with	h the UIC Program Director). Major/Serious Major/Serious Minor Minor Minor Minor Minor Minor	Well Engineer Well Engineer, Project Mgr. Well Engineer Well Engineer Well Engineer Well Engineer Well Engineer Well Engineer	Monitoring Monitoring Monitoring Monitoring Monitoring	Well Engineer
Catastrophic	munu-Gatastropino	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with for the contamination is detected, identify and implement appropriate remedial actions (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with if there is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UIC Program Director).	h the UIC Program Director). Major/Serious Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Minor	Well Engineer Well Engineer, Project Mgr. Well Engineer Well Engineer Well Engineer Well Engineer Well Engineer	Monitoring Monitoring Monitoring Monitoring Monitoring Monitoring Monitoring Monitoring	Well Engineer, P Well Engineer Well Engineer Well Engineer Well Engineer Well Engineer
Catastrophic	intine-Gatastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with for contamination is detected, identify and implement appropriate remedial actions (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with if there is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UIC Program Director). Review downhole, wellhead, and annulus pressure data.	h the UIC Program Director). Major/Serious Major/Serious Minor	Well Engineer Well Engineer, Project Mgr. Well Engineer	Monitoring Monitoring Monitoring Monitoring Monitoring Monitoring Monitoring Monitoring Monitoring	Well Engineer, F Well Engineer
Catastrophic		Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with for contamination is detected, identify and implement appropriate remedial actions (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with if there is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UIC Program Director). Review downhole, wellhead, and annulus pressure data. Isolate the nearby area, if needed; establish a safe distance and perimeter using a hand-held air-quality monitor. Perform a well log/MIT to detect CO2 movement outside of the casing.	h the UIC Program Director). Major/Serious Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious	Well Engineer Well Engineer, Project Mgr. Well Engineer	Monitoring	Well Engineer
Catastrophic	Likelihood	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with life contamination is detected, identify and implement appropriate remedial actions (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with if there is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UIC Program Director). Review downhole, wellhead, and annulus pressure data. Isolate the nearby area, if needed, establish a safe distance and perimeter using a hand-held air-quality monitor. Perform a well log/MIT to detect CO2 movement outside of the casing. Limit access to wellhead to authorized personnel only.	h the UIC Program Director). Major/Serious Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious	Well Engineer Site Operator	Monitoring Signage	Well Engineer, P Well Engineer
Catastrophic		Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with fe contamination is detected, identify and implement appropriate remedial actions (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with if there is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UIC Program Director). Review downhole, wellhead, and annulus pressure data. Solate the nearby area, if needed; establish a safe distance and perimeter using a hand-held air-quality monitor. Perform a well log/MIT to detect CO2 movement outside of the casing. Limit access to wellhead to authorized personnel only. Determine the severity of the event, based on the information available, within 24 hours of notification.	h the UIC Program Director). Major/Serious Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious	Well Engineer Well Engineer, Project Mgr. Well Engineer	Monitoring	Well Engineer
Catastrophic	Likelihood	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with for contamination is detected, identify and implement appropriate remedial actions (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the tree is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UIC Program Director). Review downhole, wellhead, and annulus pressure data. Isolate the nearby area, if needed; establish a safe distance and perimeter using a hand-held air-quality monitor. Perform a well log/MIT to detect CO2 movement outside of the casing. Limit access to wellhead to authorized personnel only. Determine the severity of the event, based on the information available, within 24 hours of notification. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious, Minor	Well Engineer Site Operator	Monitoring Signage	Well Engineer, P Well Engineer
Catastrophic	Likelihood Very Low Low Medium High Very High	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with life contamination is detected, identify and implement appropriate remedial actions (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with if there is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting Injection (upon approval of the UIC Program Director). Review downhole, wellhead, and annulus pressure data. Solate the nearby area, if needed; establish a safe distance and perimeter using a hand-held air-quality monitor. Perform a well log/MIT to detect CO2 movement outside of the casing. Limit access to wellhead to authorized personnel only. Determine the severity of the event, based on the information available, within 24 hours of notification.	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious	Well Engineer Site Operator	Monitoring	Well Engineer, P Well Engineer Site Operator Project Mgr.
Catastrophic	Likelihood VeryLow Low Medium High VeryHigh Light	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with for contamination is detected, identify and implement appropriate remedial actions (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the tire is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UIC Program Director). Review downhole, wellhead, and annulus pressure data. Solate the nearby area, if needed; establish a safe distance and perimeter using a hand-held air-quality monitor. Perform a well long/MIT to detect CO2 movement outside of the casing. Limit access to wellhead to authorized personnel only. Obtify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious, Minor	Well Engineer Site Operator Site Operator	Monitoring	Well Engineer, P Well Engineer Folget Mgr. Project Mgr.
Severity	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the unit of failure) identify and implement appropriate remedial actions to repair damage to the well (in consultation with the unit of failure) identify and implement appropriate remedial actions to repair damage to the well (in consultation with the unit of failure) identify and implement appropriate remedial actions to repair damage to the well (in consultation with the unit of failure) identify and implement appropriate remedial actions to repair damage to the well (in consultation with the unit of failure) identify and implement appropriate remedial actions to repair damage to the well (in consultation with the unit of failure) identify and implement appropriate remedial actions to repair damage to the well (in consultation with the unit of failure) identify and implement appropriate remedial actions to repair damage to the well (in consultation with the unit of failure) identify and implement appropriate remedial actions to repair damage to the well (in consultation with the unit of failure) identify and implement appropriate remedial actions to repair damage to the well (in consultation with the unit of failure) identify and implement appropriate remedial actions to repair damage to the well (in consultation with the unit of failure) identify and implement appropriate remedial actions to repair damage and conduct as a	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious, Minor	Well Engineer Site Operator Site Operator Site Operator	Monitoring	Well Engineer, P Well Engineer Project Mgr. Site Operator
Catastrophic	Likelihood VeryLow Low Medium High VeryHigh Light Serious	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with fire is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UIC Program Director). Review downhole, wellhead, and annulus pressure data. Solate the nearby area, if needed; establish a safe distance and perimeter using a hand-held air-quality monitor. Perform a well logiMIT to detect CO2 movement outside of the casing. Limit access to wellhead to authorized personnel only. Determine the severity of the event, based on the information available, within 24 hours of notification. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146 91(c). Initiate shutdown of plant. If the presence of indicator parameters is confirmed, develop (in consultation with the UIC Program Director) a case-specific work plan to:	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious, Minor Major/Serious, Minor	Well Engineer Site Operator Site Operator Site Operator Site Operator	Monitoring	Well Engineer, P Well Engineer Foliet Mgr. Site Operator Project Mgr. Site Operator Project Mgr.
Catastrophic Severity Catastrophic	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major Catastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with it there is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UIC Program Director). Review downhole, wellhead, and annulus pressure data. Is colate the nearby area, if needed; establish a safe distance and perimeter using a hand-held air-quality monitor. Perform a well loghtiff to detect CO2 movement outside of the casing. Limit access to wellhead to authorized personnel only. Determine the severity of the event, based on the information available, within 24 hours of notification. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c). Initiate shutdown of plant. If the presence of indicator parameters is confirmed, develop (in consultation with the UIC Program Director) a case-specific work plan to: Install additional groundwater monitoring points near the affected groundwater well(s) to delineate the extent of impact, and	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious, Minor Major/Serious/Minor Major/Serious/Minor	Well Engineer Site Operator	Monitoring	Well Engineer, P Well Engineer Project Mgr. Site Operator Project Mgr. Site Operator Project Mgr. GW Consultant
Severity	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major Catastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and exent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with fire UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shufdown to get repairs accomplished. May include plugs Reset automatic shufdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and exent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with fifther is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UIC Program Director). Review downhole, wellhead, and annulus pressure data. Solicit the nearby area, if needed: establish a safe distance and perimeter using a hand-held air-quality monitor. Perform a well logMil'T to detect CO2 movement outside of the casing. Limit access to wellhead to authorized personnel only. Determine the severity of the event, based on the information available, within 24 hours of notification. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c). If the pressence of indicator parameters is confirmed, develop (in consultation with the UIC Program Director) a case-specific work plan to: Install additional groundwater monitoring points near the affected USDW. Arrange for an alternate potable water supply, if the USDW was being utilized and has been caused to exceed drinking water standards.	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious/Minor	Well Engineer Site Operator GW Consultant GW Consultant GW Consultant	Monitoring	Well Engineer, P Well Engineer Project Mgr. Site Operator Project Mgr. Site Operator Project Mgr. GW Consultant GW Consultant GW Consultant
Severity	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major Catastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with full or Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with if there is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UIC Program Director). Review downhole, wellhead, and annulus pressure data. Isolate the nearby area, if needed; establish a safe distance and perimeter using a hand-held air-quality monitor. Perform a well log/MIT to detect COZ movement outside of the casing. Limit access to wellhead to authorized personnel only. Determine the severity of the event, based on the information available, within 24 hours of notification. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c). Initiate shutdown of plant. If the presence of indicator parameters is confirmed, develop (in consultation with the UIC Program Director) a case-specific work plan to: Install additional groundwater monitoring points near the affected groundwater well(s) to delineate the extent of impact; and	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious, Minor Major/Serious/Minor Major/Serious/Minor Major/Serious/Minor	Well Engineer Site Operator Site Operator	Monitoring	Well Engineer, P Well Engineer Folget Mgr. Site Operator Project Mgr. Site Operator Project Mgr. GW Consultant GW Consultant
Severity	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major Catastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UC Program Directory). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer form shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the three is damage to the well-damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UC Program Director). Review downhole, wellhead, and annulus pressure data. Solate the nearby area, if needed, establish a safe distance and perimeter using a hand-held air-quality monitor. Perform a well logoMit to detect COZ movement outside of the casing. Limit access to wellhead to authorized personnel only. Determine the severity of the event, based on the information available, within 24 hours of notification. Notify the UC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c). Initiate shutdown of plant. If the presence of indicator parameters is confirmed, develop (in consultation with the UC Program Director) a case-specific work plan to: Install additional groundwater monitoring points near the affected groundwater well(e) to delineate the extent of impact, and Remediate unaceptable impacts to the affected USDW. Arrange for an alternate potable water supply, if the USDW was being utilized and has been caused to exceed drinking water standards.	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious/Minor	Well Engineer Site Operator GW Consultant GW Consultant GW Consultant	Monitoring	Well Engineer, P Well Engineer Project Mgr. Site Operator Project Mgr. Site Operator Project Mgr. GW Consultant GW Consultant GW Consultant
Severity	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major Catastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and exent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with fire UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shufdown to get repairs accomplished. May include plugs Reset automatic shufdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and exent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with fifther is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UIC Program Director). Review downhole, wellhead, and annulus pressure data. Solicit the nearby area, if needed: establish a safe distance and perimeter using a hand-held air-quality monitor. Perform a well logMil'T to detect CO2 movement outside of the casing. Limit access to wellhead to authorized personnel only. Determine the severity of the event, based on the information available, within 24 hours of notification. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c). If the pressence of indicator parameters is confirmed, develop (in consultation with the UIC Program Director) a case-specific work plan to: Install additional groundwater monitoring points near the affected USDW. Arrange for an alternate potable water supply, if the USDW was being utilized and has been caused to exceed drinking water standards.	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious/Minor	Well Engineer Site Operator GW Consultant GW Consultant GW Consultant	Monitoring	Well Engineer, P Well Engineer Project Mgr. Site Operator Project Mgr. Site Operator Project Mgr. GW Consultant GW Consultant GW Consultant
Severity	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major Catastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with integrity). If there is damage to the well-head, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UC Program Director). Review downhole, well-head, in authoritized personnel only. Review downhole, well-head to authoritized personnel only. Determine the severity of the event, based on the information available, within 24 hours of notification. Notify the UC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c). Initiates shutdown of plant. If the researce of indicator parameters is confirmed, develop (in consultation with the UC Program Director) a case-specific work plan to: Installated indicator parameters is confirmed, develop (in consultation with the UC Program Director) a case-specific work plan to: Installated indicator parameters is confirmed, develop (in consultation with the UC Program Director) a case-specific work plan to: Installated indicator parameters is confirmed, develop (in consultation with the UC Program Director) and the water supply. If the USDW was being utilized and has been caused to exceed drinking water standards. Proceed with efforts to remediate USDW to miligate any unsafe conditions (e.g., install system to i	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious/Minor	Well Engineer Site Operator Site Operator Site Operator Site Operator Site Operator GW Consultant GW Consultant GW Consultant GW Consultant GW Consultant GW Consultant	Monitoring	Well Engineer, F Well Engineer Froject Mgr. Project Mgr. Site Operator Project Mgr. GW Consultant GW Consultant GW Consultant GW Consultant GW Consultant
Severity	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major Catastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UC Program Directory). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer form shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the three is damage to the well-damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UC Program Director). Review downhole, wellhead, and annulus pressure data. Solate the nearby area, if needed, establish a safe distance and perimeter using a hand-held air-quality monitor. Perform a well logoMit to detect COZ movement outside of the casing. Limit access to wellhead to authorized personnel only. Determine the severity of the event, based on the information available, within 24 hours of notification. Notify the UC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c). Initiate shutdown of plant. If the presence of indicator parameters is confirmed, develop (in consultation with the UC Program Director) a case-specific work plan to: Install additional groundwater monitoring points near the affected groundwater well(e) to delineate the extent of impact, and Remediate unaceptable impacts to the affected USDW. Arrange for an alternate potable water supply, if the USDW was being utilized and has been caused to exceed drinking water standards.	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious Major/Serious/Minor	Well Engineer Site Operator Site Operator Site Operator Site Operator Site Operator GW Consultant GW Consultant GW Consultant GW Consultant	Monitoring	Well Engineer Project Mgr. Site Operator Project Mgr. Site Operator Project Mgr. GW Consultant GW Consultant GW Consultant GW Consultant
Severity	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major Catastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with integrity). If there is damage to the well-head, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the UC Program Director). Review downhole, well-head, in authoritized personnel only. Review downhole, well-head to authoritized personnel only. Determine the severity of the event, based on the information available, within 24 hours of notification. Notify the UC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c). Initiates shutdown of plant. If the researce of indicator parameters is confirmed, develop (in consultation with the UC Program Director) a case-specific work plan to: Installated indicator parameters is confirmed, develop (in consultation with the UC Program Director) a case-specific work plan to: Installated indicator parameters is confirmed, develop (in consultation with the UC Program Director) a case-specific work plan to: Installated indicator parameters is confirmed, develop (in consultation with the UC Program Director) and the water supply. If the USDW was being utilized and has been caused to exceed drinking water standards. Proceed with efforts to remediate USDW to miligate any unsafe conditions (e.g., install system to i	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious/Minor	Well Engineer Site Operator Site Operator Site Operator Site Operator Site Operator GW Consultant GW Consultant GW Consultant GW Consultant GW Consultant GW Consultant	Monitoring	Well Engineer Froject Mgr. Project Mgr. Site Operator Project Mgr. GW Consultant GW Consultant GW Consultant GW Consultant GW Consultant
Severity	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major Catastrophic Multi-Catastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. Where has been a loss of mechanical integrity, prepare well for longer term shuddown to get repairs accomplished. May include plugs Reset automatic shuddown device. Monitor well pressure, temperature, and annulus pressure to verify integrity joss and determine the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with well pressure, temperature, and annulus pressure to verify integrity joss and determine the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with well inlegative prior to restarting injection (upon approval of the UIC Program Director). Positive well inlegative prior to restarting injection (upon approval of the UIC Program Director). Perform a well loghtfit to detect OCC movement outside of the casing. Unit access to veilhead to suthorized personnel only. Positive the UIC Program Director within 24 hours of the emergency event, per 40 CFR 148 91(c). Initiate shuddown of joint. If the presence of indicator veilm 24 hours of the emergency event, per 40 CFR 148 91(c). Initiate shuddown of joint. If the presence of indicator veilm 24 hours of the emergency event, per 40 CFR 148 91(c). Initiate shuddown of joint. Proceed with efforts to remediate usDW to miligate any unsafe conditions (e.g., establish as been caused to exceed din	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious/Minor	Well Engineer Site Operator Site Operator Site Operator Site Operator GW Consultant GW Consultant GW Consultant GW Consultant GW Consultant Well Eng., Project Mgr. Site Operator	Monitoring	Well Engineer Project Mgr. Site Operator Project Mgr. GW Consultant GW Consultant GW Consultant GW Consultant GW Consultant Well Eng., Project Air monitoring
Severity	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major Catastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the U.C. Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Menter well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and otdent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with if there is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead teakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the U.C. Program Director). Review downhole, wellhead, and annulus pressure table. Isolate the nearly area, if needed souther and annulus pressure table. Isolate the nearly area, if needed souther of the casing. Limit access to wellhoad to authorized personnel only. Notify the U.C. Program Director with 24 hours of the cerregency event, per 40 CFR 146 91(c). Institute shutdown of plant. If the presence of indicator parameters is confirmed, develop (in consultation with the U.C. Program Director) a case-specific work plan to: Institute shutdown of plant. Arrange for an alternate potable water supply, if the U.SDW was being utilized and has been caused to exceed drinking water standards. Proceed with efforts to remediate USDW to miligate any unsafe conditions (e.g., install system to interceptions and the U.C. Program Director) until unacceptable adverse U.SDW impact has been fully addressed. Address a well integrity issue, including taking specific steps to identify the location of the relative remediation and monitoring on a frequent basis (frequency to be determined by Clean Energ	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious/Minor	Well Engineer Site Operator Site Operator Site Operator Site Operator GW Consultant GW Consultant GW Consultant GW Consultant GW Consultant Well Eng., Project Mgr. Site Operator	Monitoring Signage	Well Engineer Gite Operator Project Mgr. Site Operator Project Mgr. GW Consultant
Severity	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major Catastrophic Multi-Catastrophic	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. Where has been a loss of mechanical integrity, prepare well for longer term shuddown to get repairs accomplished. May include plugs Reset automatic shuddown device. Monitor well pressure, temperature, and annulus pressure to verify integrity joss and determine the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with well pressure, temperature, and annulus pressure to verify integrity joss and determine the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with well inlegative prior to restarting injection (upon approval of the UIC Program Director). Positive well inlegative prior to restarting injection (upon approval of the UIC Program Director). Perform a well loghtfit to detect OCC movement outside of the casing. Unit access to veilhead to suthorized personnel only. Positive the UIC Program Director within 24 hours of the emergency event, per 40 CFR 148 91(c). Initiate shuddown of joint. If the presence of indicator veilm 24 hours of the emergency event, per 40 CFR 148 91(c). Initiate shuddown of joint. If the presence of indicator veilm 24 hours of the emergency event, per 40 CFR 148 91(c). Initiate shuddown of joint. Proceed with efforts to remediate usDW to miligate any unsafe conditions (e.g., establish as been caused to exceed din	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious/Minor	Well Engineer Site Operator Site Operator Site Operator Site Operator GW Consultant GW Consultant GW Consultant GW Consultant GW Consultant Well Eng., Project Mgr. Site Operator	Monitoring	Well Engineer Project Mgr. Site Operator Project Mgr. GW Consultant GW Consultant GW Consultant GW Consultant GW Consultant Well Eng., Project Air monitoring
Severity	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major Catastrophic Multi-Catastrophic Likelihood	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the U.C. Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Menter well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and otdent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with if there is damage to the wellhead, repair the damage and conduct a survey to ensure wellhead teakage has ceased. Confirm well integrity prior to restarting injection (upon approval of the U.C. Program Director). Review downhole, wellhead, and annulus pressure table. Isolate the nearly area, if needed souther and annulus pressure table. Isolate the nearly area, if needed souther of the casing. Limit access to wellhoad to authorized personnel only. Notify the U.C. Program Director with 24 hours of the cerregency event, per 40 CFR 146 91(c). Institute shutdown of plant. If the presence of indicator parameters is confirmed, develop (in consultation with the U.C. Program Director) a case-specific work plan to: Institute shutdown of plant. Arrange for an alternate potable water supply, if the U.SDW was being utilized and has been caused to exceed drinking water standards. Proceed with efforts to remediate USDW to miligate any unsafe conditions (e.g., install system to interceptions and the U.C. Program Director) until unacceptable adverse U.SDW impact has been fully addressed. Address a well integrity issue, including taking specific steps to identify the location of the relative remediation and monitoring on a frequent basis (frequency to be determined by Clean Energ	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious/Minor	Well Engineer Site Operator Site Operator Site Operator Site Operator GW Consultant GW Consultant GW Consultant GW Consultant GW Consultant Well Eng., Project Mgr. Site Operator	Monitoring Signage	Well Engineer Gite Operator Project Mgr. Site Operator Project Mgr. GW Consultant
Severity	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major Catastrophic Multi-Catastrophic Multi-Catastrophic VeryLow Low Medium High VeryHigh	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of fature, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, preserve well for longer ferm shutdown to get repairs accomplished. May include plugs Reset automatic shutdown devices. Monitor well pressure, temperature, and annulus pressure to verify integrity bas and determine the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with a finite or in damage to the wellhead, repair the damage and conduct a survey to ensure wellhead leakage has ceased. Confirm well integrity prior to restarting injection (goes approved of the UC Program Director). Review downhole, wellhead, and annulus pressure data. Solicits the reachy area, if needed, ceabibilith a set of distance and perimeter using a hand-held air-quality menter. Periform a usel logalNT to detect OC2 movement outside of the ceating. Limit access to wellhased to authorized personnel only. Determine the seventy of the event, based on the information available, within 24 hours of neifficiation. Notly the UC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c). Intelligence of indicator parameters is confirmed, develop (in consultation with the UC Program Director) a case-specific work plant to: If the presence of indicator parameters is confirmed, develop (in consultation with the UC Program Director) a case-specific work plant to: Intelligence of indicator parameters is confirmed, develop (in consultation with the UC Program Director) as a case-specific work plant to: Intelligence of indicator parameters is confirmed, develop (in consultation with the UC Program Director) as a case-specific work plant to: Intelligence of	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious/Minor	Well Engineer Site Operator Site Operator Site Operator Site Operator GW Consultant Site Operator Site Operator Site Operator Site Operator	Monitoring Signage Monitoring Monitoring Monitoring Monitoring Signage Monitoring	Well Engineer Froject Mgr. Site Operator Project Mgr. GW Consultant
Severity	Likelihood VeryLow Low Medium High VeryHigh Light Serious Major Catastrophic Multi-Catastrophic Multi-Catastrophic VeryLow Low Medium High VeryHigh	Montor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with a consultation with the UIC Program Director). Conduct assessment to determine whether there has been a loss of mechanical integrity. If there has been a loss of mechanical integrity, prepare well for longer term shuldown to get repairs accomplished. May include plugs Reset automatic altuidown devices. Montor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the cause of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the cause and extent of failure, identify and implement appropriate remedial actions to repair damage to the well (in consultation with the cause of the remedial extent of failure, identify and imple	h the UIC Program Director). Major/Serious Minor Minor Minor Minor Minor Minor Minor Minor Minor Major/Serious Major/Serious Major/Serious Major/Serious/Minor Major/Serious/Minor	Well Engineer Site Operator Site Operator Site Operator Site Operator GW Consultant GW Consultant GW Consultant GW Consultant Well Eng., Project Mgr. Site Operator Site Operator	Monitoring Monitoring	Well Engineer, P Well Engineer Site Operator Project Mgr. Site Operator Project Mgr. GW Consultant

4b	SLB	Throughout	Fluid (e.g. CO2) leakage to a USDW	1. Any evidence of CO2 movement out of the injection zone (i.e., not necessarily to a USDW) to address unanticipated events associated with faults or other pathways; any potential USDW endangerment/unacceptable changes in water quality; and CO2 leakage to the land surface.
5a	SLB	Throughout	A natural disaster (e.g., earthquake, tornado, lightning strike)	1. Well problems (integrity loss, leakage, or malfunction) may arise as a result of a natural disaster affecting the normal operation of the injection well. An earthquake may disturb surface and/or subsurface facilities; and weather-related disasters (e.g., tornado or lightning strike) may affect surface facilities.
6 a	SLB	Throughout or injection	Induced or natural seismic event	1. Injection operation inducing a seismic event equal to or less than M1.5
6b	SLB	Throughout or injection	Induced or natural seismic event	1. Five (5) or more seismic events within a 30-day period having a magnitude greater than M1.5 but less than or equal to M2.0
6 c	SLB	Throughout or injection	Induced or natural seismic event	Seismic event greater than M1.5 and local observation or felt report.
6c	SLB	Throughout or injection	Induced or natural seismic event	1. Seismic event greater than M2.0 and no felt report
6d	SLB	Throughout or injection	Induced or natural seismic event	1. Selsmic event greater than M2.0 and local observation or report

Catastrophic						
Oatastrohilic		Remediate unacceptable impacts to the affected USDW.	Major/Serious/Minor	GW Consultant	Monitoring	GW Consulta
	Mit	Arrange for an alternate potable water supply, if the USDW was being utilized and has been caused to exceed drinking water standards.	Major/Serious/Minor	GW Consultant	Monitoring	GW Consulta
	Mit	Proceed with efforts to remediate USDW to mitigate any unsafe conditions (e.g., install system to intercept/extract brine or CO2or "pump and treat" to aerate CO2-laden water).	Major/Serious/Minor	GW Consultant	Monitoring	GW Consulta
	Mit	Continue groundwater remediation and monitoring on a frequent basis (frequency to be determined by Clean Energy Systems and the UIC Program Director) until unacceptable adverse USDW impact has been fully addressed.	Major/Serious/Minor	GW Consultant	Monitoring	GW Consulta
	Mit	Address a well integrity issue, including taking specific steps to identity the location of the failure/leak, affect repairs, and demonstrate MI.	Major/Serious/Minor	Well Eng., Project Mgr.	Monitoring	Well Eng., Pr
	Mit	Isolate the nearby area, if needed; establish a safe distance and perimeter using a hand-held air-quality monitor.	Major/Serious/Minor	Site Operator	Fence	Air monitoring
	Likelihood	Limit access to wellhead to authorized personnel only.		Site Operator	Signage	Site Operator
		Determine the severity of the event, based on the information available, within 24 hours of notification.		Site Operator	Monitoring	Site Operato
		Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).	Major/Serious, Minor	Site Operator	Monitoring	Site Operato
erity	Serious Mit	Initiate immediate shutdown plan. Shut in well (close flow value)	Major/Serious	Site Operator	Preventative Operation	Site Operato
Sev		Shut in well (close flow valve). Vent CO2 from surface facilities if appropriate.	Major/Serious/Minor Major/Serious/Minor	Site Operator Site Operator	Preventative Operation Preventative Operation	Site Operato
	Multi-Catastrophic Mit	Communicate with CES personnel and local authorities to initiate evacuation plans, as necessary.	Major/Serious	Site Operator	Monitoring	
Catastrophic	Mit	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director).	Major/Serious		Monitoring	
		Determine if any leaks to ground water or surface water occurred. If contamination is detected, identify and implement appropriate remedial actions (in consultation with the UIC Program Director).	Major/Serious Major/Serious	GW Consultant GW Consultant	Monitoring Remedial Action	GW Consult
	_	ation				
	Mit	if there has been a loss of mechanical integrity, initiate shutdown plan.	Minor Minor	Site Operator Site Operator	Monitoring Remedial Action	Site Operat
		ation If there has not been a loss of mechanical integrity, initiate gradual shutdown.	Minor	Site Operator	Remedial Action	Site Operat
	Mit	Monitor well pressure, temperature, and annulus pressure to verify integrity loss and determine the cause and extent of failure; identify and implement appropriate remedial actions to repair damage to the well (in consultation with the UIC Program Director).	Minor	Site Operator	Monitoring	Site Operat
	Likelihood	Limit access to wellhead to authorized personnel only.		Site Operator	Signage	Site Operat
	VeryLow Low Medium High VeryHigh Mit	Determine the severity of the event, based on the information available, within 24 hours of notification.		Site Operator	Monitoring	Site Operat
Light A	Serious Mit	ation				
Seve	Major Catastrophic Mit	Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c). Ition Continue normal operation within permitted levels.	Minor	Site Operator Site Operator	Monitoring	Site Operat
	Multi-Catastrophic Mit	Document the event for reporting to EPA in semiannual reports.	Minor	Site Operator		Site Opera
	Likelihood VeryLow Low Medium High VeryHigh	Limit access to wellhead to authorized personnel only.		Site Operator	Signage	Site Operat
	Light X Mit	Determine the severity of the event, based on the information available, within 24 hours of notification.		Site Operator	Monitoring	Site Opera
erity	Serious Major Mit	Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).	Major/Serious, Minor	Site Operator	Monitoring	Site Opera
Sev	Catastrophic	ction Continue normal operation within permitted levels.	Minor	Site Operator		Site Opera
Light	Multi-Catastrophic Mit	Initiate gradual shutdown of the well if it is determined to be appropriate.	Minor	Site Operator	+	Site Opera
		Review seismic and operational data to determine location and magnitude of seismic event. If the event falls within or near the extents of the plume, use the microseismic, geomechanics and facies data to estimate potential impact to USDWs. Perform a pressure fall-off test to determine if the				
		storage complex has been compromised by the seismic event. Report findings to the UIC Program Director and issue corrective actions.	Minor Minor	Microseismic provider Site Operator		Site Opera
		Document the event for reporting to EPA in semiannual reports.	Minor	Site Operator		Site Opera
	Likelihood VeryLow Low Medium High VeryHigh	Limit access to wellhead to authorized personnel only.		Site Operator	Signage	Site Operate
>		Determine the severity of the event, based on the information available, within 24 hours of notification.		Site Operator	Monitoring	Site Opera
verity			1	1	1	
Major		Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).	Major/Serious, Minor	Site Operator	Monitoring	
Major	Catastrophic	Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c). Continue normal operation within permitted levels. Initiate gradual shutdown of the well if it is determined to be appropriate.	Major/Serious, Minor Minor Minor	Site Operator Site Operator Site Operator	Monitoring	Site Opera
	Catastrophic	ation Continue normal operation within permitted levels.	Minor	Site Operator	Monitoring	Site Opera
	Catastrophic	Continue normal operation within permitted levels. Initiate gradual shutdown of the well if it is determined to be appropriate.	Minor	Site Operator	Monitoring	Site Opera
	Catastrophic	Continue normal operation within permitted levels. Initiate gradual shutdown of the well if it is determined to be appropriate. Review seismic and operational data to determine location and magnitude of seismic event. If the event falls within or near the extents of the plume, use the microseismic, geomechanics and facies data to estimate potential impact to USDWs. Perform a pressure fall-off test to determine if the storage complex has been compromised by the seismic event.	Minor Minor	Site Operator Site Operator Microseismic provider	Monitoring	Site Opera Site Opera
	Catastrophic	Continue normal operation within permitted levels. Initiate gradual shutdown of the well if it is determined to be appropriate. Review seismic and operational data to determine location and magnitude of seismic event. If the event falls within or near the extents of the plume, use the microseismic, geomechanics and facies data to estimate potential impact to USDWs. Perform a pressure fall-off test to determine if the	Minor Minor	Site Operator Site Operator	Monitoring	Site Opera Site Opera Site Opera
	Catastrophic Multi-Catastrophic Mit Likelihood	Continue normal operation within permitted levels. Initiate gradual shutdown of the well if it is determined to be appropriate. Review seismic and operational data to determine location and magnitude of seismic event. If the event falls within or near the extents of the plume, use the microseismic, geomechanics and facies data to estimate potential impact to USDWs. Perform a pressure fall-off test to determine if the storage complex has been compromised by the seismic event. Report findings to the UIC Program Director and issue corrective actions.	Minor Minor	Site Operator Site Operator Microseismic provider Site Operator		Site Opera Site Opera Site Opera Site Opera Site Opera Site Opera
	Catastrophic Mit Multi-Catastrophic Likelihood Very Low Low Medium High Very High	Continue normal operation within permitted levels. Initiate gradual shutdown of the well if it is determined to be appropriate. Review seismic and operational data to determine location and magnitude of seismic event. If the event falls within or near the extents of the plume, use the microseismic, geomechanics and facies data to estimate potential impact to USDWs. Perform a pressure fall-off test to determine if the storage complex has been compromised by the seismic event. Report findings to the UIC Program Director and issue corrective actions. Document the event for reporting to EPA in semiannual reports. Limit access to wellhead to authorized personnel only.	Minor Minor	Site Operator Site Operator Microseismic provider Site Operator Site Operator Site Operator	Signage	Site Opera Site Opera Site Opera Site Opera Site Opera
rity	Catastrophic Multi-Catastrophic Likelihood VeryLow Low Medium High VeryHigh Light Serious	Continue normal operation within permitted levels. Initiate gradual shutdown of the well if it is determined to be appropriate. Review seismic and operational data to determine location and magnitude of seismic event. If the event falls within or near the extents of the plume, use the microseismic, geomechanics and facies data to estimate potential impact to USDWs. Perform a pressure fall-off test to determine if the storage complex has been compromised by the seismic event. Report findings to the UIC Program Director and issue corrective actions. Document the event for reporting to EPA in semiannual reports. Limit access to wellhead to authorized personnel only. Determine the severity of the event, based on the information available, within 24 hours of notification.	Minor Minor Minor Minor Minor Minor Minor	Site Operator Site Operator Microseismic provider Site Operator Site Operator Site Operator Site Operator	Signage	Site Opera
Severity	Catastrophic Mit Multi-Catastrophic Likelihood VeryLow Low Medium High VeryHigh Light Mit Serious Major Mit	Continue normal operation within permitted levels. Initiate gradual shutdown of the well if it is determined to be appropriate. Review seismic and operational data to determine location and magnitude of seismic event. If the event falls within or near the extents of the plume, use the microseismic, geomechanics and facies data to estimate potential impact to USDWs. Perform a pressure fall-off test to determine if the storage complex has been compromised by the seismic event. Report findings to the UIC Program Director and issue corrective actions. Document the event for reporting to EPA in semiannual reports. Limit access to wellhead to authorized personnel only.	Minor Minor Minor Minor Minor Minor Minor	Site Operator Site Operator Microseismic provider Site Operator Site Operator Site Operator	Signage	Site Opera
Severity	Catastrophic Mit Multi-Catastrophic Likelihood VeryLow Low Medium High VeryHigh Light Mit Serious Major Catastrophic Mit Mit Mit Mit Mit Mit Mit M	Continue normal operation within permitted levels. Initiate gradual shutdown of the well if it is determined to be appropriate. Review seismic and operational data to determine location and magnitude of seismic event. If the event falls within or near the extents of the plume, use the microseismic, geomechanics and facies data to estimate potential impact to USDWs. Perform a pressure fall-off test to determine if the storage complex has been compromised by the seismic event. Report findings to the UIC Program Director and issue corrective actions. Document the event for reporting to EPA in semiannual reports. Limit access to wellhead to authorized personnel only. Determine the severity of the event, based on the information available, within 24 hours of notification. Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c). Continue normal operation within permitted levels. Initiate gradual shutdown of the well if it is determined to be appropriate.	Minor Minor Minor Minor Minor Minor Minor Minor	Site Operator Site Operator Microseismic provider Site Operator Site Operator Site Operator Site Operator Site Operator	Signage	Site Opera
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6e	SLB	Throughout or injection	Induced or natural seismic event	Seismic event greater than M2.0,and local observation or report, and local report and confirmation of damage .
		,		

2. Seismic event >M3.5

Ver	Major	Mitigation	Notify the UIC Program Director within 24 hours of the emergency event, per 40 CFR 146.91(c).	Major/Serious, Minor	Site Operator	Site Operator
တိ	Catastrophic	Mitigation	Initiate immediate shutdown plan.	Minor	Site Operator	Site Operator
	Multi-Catastrophic					
			Communicate with facility personnel and local authorities to initiate evacuation plans, as necessary.			
		Mitigation		Minor	Site Operator	Site Operator
Catastrophic		Mitigation	Monitor well pressure, temperature, and annulus pressure to verify well status and determine the cause and extent of any failure; identify and implement appropriate remedial actions (in consultation with the UIC Program Director).	Minor	Site Operator	Site Operator
		Mitigation	Determine if leaks to ground water or surface water or a CO2 leak to the surface occurred.	Major/Serious	GW Consultant	GW Consultant
		Mitigation	If a CO2 leak or USDW contamination/endangerment is detected: Notify the UIC Program Director within 24 hours of the determination and implement appropriate remedial actions in consultations with the Director.		Site Operator	Site Operator
			Review seismic and operational data to determine location and magnitude of seismic event. If the event falls within or near the extents of the plume, use the microseismic, geomechanics and facies data to estimate potential impact to USDWs. Perform a pressure fall-off test to determine if the			
			storage complex has been compromised by the seismic event.		Microseismic provider	Site Operator Site Operator Site Operator/M
		Mitigation	Report findings to the UIC Program Director and issue corrective actions.		Site Operator	Site Operator
1			Document the event for reporting to EPA in semiannual reports.	Minor	Site Operator	Site Operator/

Preliminary Risk Register

The likelihood and severity were defined based upon knowledge of the area, previous project experience, and domain knowledge.

A meeting was held amongst the team where consensus was reached as to the likelihood and severity levels.

As the project progresses, the risk register will be updated to reflect the current risk scenarios and incorporate residual risk based upon the response plan. When reviewing the scenario the highest risk level was assigned.

For each scenario, we evaluate Severity first, and the is the mo

Ranking Factor				
5	Multi-Catastrophic	Multiple fatalities and/or d		
4	Catastrophic	One fatality and/or damage		
3	Maior	Injury causing permanent o		
3	Major	suspension and/or area eva		
2	Serious	Injury causing temporary di		
1	Light	Minor injury or illness and/		

Ranking		
Factor		
5	Very High	Scenario occurs every few
4	High	Scenario occurs every few (
3	Medium	Scenario occurs every centi
2	Low	Scenario occurs every few (
1	Very Low	Scenario unlikely to occur.

	Risk Level					
Black	Extreme: Stop the tasks/processes. Significant Action Plan requir					
	High: Significant Action Plan required.					
Yellow	Medium: Action Plan required.					
Green	Low: Proceed carefully. Action Plan may but warranted but not req					
Blue	Insignificant: Safe to proceed. Action Plan not required.					

		Lil
	Risk Type	Very Low Low
	Light	
₹	Serious	
Ver	Major	
Sev	Catastrophic	
	Multi-Catastrophic	

Schlumberger-Private

erity and Likelihood (probability)

to 25.

nen judge the Likelihood that negative impacts of that Severity will occur. ost applicable for the scenario.

Severity of Negative Impact (S)

amages exceeding \$100M and/or project shut down.

es \$10M-\$100M and/or project lost time greater than 1 year.

lisability and/or damages exceeding \$1M to \$10M and/or project lost time greater than 1 month and/or permit acuation.

isability and/or damages \$100k to \$1M and/or project lost time greater than 1 week and/or regulatory notice. or damages less than \$100k and/or project lost time less than 1 week.

Likelihood of Impact or Failure Occurring (L)

years, or more often. Nearly certain to happen during the project.

decades. Probably will happen during the project.

ury.

centuries.

ed. uired.

kelihood					
Medium	High	Very High			

				Li	kelihood	t	
Fluid Leakage		Very Low	Low	Medium	High	Very High	
	Light						
_	Serious						
Severity	Major						
Š							
S	Catastrophic						
	Multi-Catastrophic						

At this time all the pull down lists are called on from the Risk Register Tab, hidden rows 2-8

Risk Type

Drilling

Natural

Seismic

Equipment

Leakage

Risk Category	Likelihood	Severity	Strategy	Status	Avoidance Measures
Cost	Very Low	Light	Avoidance	Open	Monitoring
Schedule	Low	Serious	Transference	In Progress	Maintenance
Cost & Schedule	Medium	Major	Mitigation	Resolved	Monitoring/Maintenance
Scope	High	Catastrophic	Acceptance	Closed	
Quality	Very High	Multicatastrophic	Not Applicable	On Hold	
HS				No Longer Threat	
Environmental					